IN THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1(Currently Amended). ~~A method for detecting the presence of a packet in a communications channel using multiple sampling rates, the method comprising:~~

~~(a) sampling the communications channel at a first sampling rate, producing a sequence of samples;~~

~~(b) correlating the sequence of samples;~~

~~(c) comparing the correlation result with a threshold; and~~

~~(d) sampling the communications channel at a second sampling rate based on the result of the comparison;~~

~~wherein the correlating step comprises correlating the sequence of samples with itself.~~ A method of detecting packets in a communication channel comprising:

sampling the communication channel at a first sampling rate to produce a sequence of samples;

correlating at least one sample of the sequence of samples with one or more samples of the sequence of samples to generate a plurality of correlation results;

computing a correlation value from the plurality of correlation results;

comparing the correlation value with a threshold; and

sampling the channel at a second sampling rate based on the result of the comparison.

2. Canceled.

3(Original). The method of claim 1, wherein the correlating step comprises correlating the sequence of samples with a reference sequence of samples stored in a memory.

4(Original). The method of claim 1, wherein the first sampling rate is sufficient to accurately recover data encoded in the packet.

5(Original). The method of claim 1, wherein the second sampling rate is greater than the first sampling rate.

6(Original). The method of claim 5, wherein the second sampling rate is an integer multiple of the first sampling rate.

7(Original). The method of claim 5, wherein the second sampling rate is an integer multiple of a minimum sampling rate required to accurately recover data encoded in the packet.

8(Original). The method of claim 1, wherein the second sampling step occurs only if the correlation result exceeds the threshold.

9(Original). The method of claim 1, wherein the method further comprising:

(e) decoding the packet;

(f) processing any data encoded in the packet; and

(g) repeating steps (a)-(d).

10(Original). The method of claim 9, wherein following the processing step, the method further comprising the step of changing the sampling rate back to the first sampling rate after the completion of processing the packet.

11(Original). The method of claim 9, wherein following the processing step, the method further comprising the step of stopping the processing of the packet and changing the sampling rate back to the first sampling rate after determining an erroneous detection of the packet.

12(Original). The method of claim 1, wherein a receiver is detecting the presence of the packet, and wherein the method further comprising:

(e) decoding the packet;

(f) determining an intended recipient of the packet;

(g) processing any data encoded in the packet if the intended recipient and the receiver are the same; and

(h) repeating steps (a)-(h).

13(Original). The method of claim 1, wherein the correlation step is performed after a new sample is produced.

14(Original). The method of claim 1, wherein the correlation step is performed after a specified number of new samples are produced.

15(Currently Amended). A receiver for a communications system comprising:

a signal detector, the signal detector containing circuitry to detect signals transmitted on a communications channel;

a sampler coupled to the signal detector, the sampler containing circuitry to sample the signals detected on the communications channel by the signal detector at a variable sampling rate and produce a sequence of samples, wherein the sampler samples the communications channel at a first sampling rate when attempting to detect a packet and at a second sampling rate when a packet has been detected;

a correlator coupled to the sampler, the correlator containing circuitry to ~~compare samples in the sequence of samples and produce a correlation value based on the comparison, wherein the correlator is configured to correlate the sequence of samples with itself~~;

correlate at least one sample of the sequence of samples with one or more samples of the sequence of samples to generate a plurality of correlation results;

compute a correlation value from the plurality of correlation results;

a processor coupled to the correlator and the sampler, the processor containing circuitry to detect the presence of a packet based on results produced by the correlator by comparing the correlation value with a threshold, decode and process data contained in a packet transmitted on the communications channel, and to control the sampling rate of the sampler;

wherein the sampler comprising:

a latch coupled to the signal detector, the latch containing circuitry to capture a signal value at a first input and produce a sample corresponding to the captured signal value at an output; and

a sampling clock coupled to the latch and the processor, the sampling clock containing circuitry to control the sampling rate of the sampler based on control information from the processor.

16(Original). The receiver of claim 15, wherein the processor changes the sampling rate back to the first sampling rate after the completed reception of the packet.

17(Original). The receiver of claim 15, wherein the processor changes the sampling rate back to the first sampling rate after the processor determines that the packet was destined for a different receiver.

18(Original). The receiver of claim 15, wherein the processor changes the sampling rate back to the first sampling rate after determining an erroneous detection of the packet.

19(Currently Amended). A communications device comprising:

a transmitter to transmit information from the communications device;

a receiver to receive information sent to the communications device, the receiver comprising:

a signal detector, the signal detector containing circuitry to detect signals transmitted on a communications channel;

a sampler coupled to the signal detector, the sampler containing circuitry to sample the signals detected on the communications channel by the signal detector at a variable sampling rate and produce a sequence of samples, wherein the sampler samples the communications channel at a first sampling rate when attempting to detect a packet and at a second sampling rate when a packet has been detected;

a correlator coupled to the sampler, the correlator containing circuitry to ~~compare samples in the sequence of samples and produce a correlation value based~~

~~on the comparison, wherein the correlator is configured to correlate the sequence of samples with itself~~; correlate at least one sample of the sequence of samples with one or more samples of the sequence of samples to generate a plurality of correlation results, and compute a correlation value from the plurality of correlation results;

a processor coupled to the correlator and the sampler, the processor containing circuitry to detect the presence of a packet based on results produced by the correlator by comparing the correlation value with a threshold, and decode and process data contained in a packet transmitted on the communications channel and to control the sampling rate of the sampler;

wherein the sampler comprising:

a latch coupled to the signal detector, the latch containing circuitry to capture a signal value at a first input and produce a sample corresponding to the captured signal value at an output; and

a sampling clock coupled to the latch and the processor, the sampling clock containing circuitry to control the sampling rate of the sampler based on control information from the processor.

20(Original). The communications device of claim 19, wherein the signal detector is a sensor capable of detecting wirelessly transmitted signals.

21(Original). The communications device of claim 19, wherein the signal detector is a sensor capable of detecting signals transmitted on a wireline communications channel.

22(New). A method according to claim 1, wherein a first plurality of samples is correlated with one or more pluralities of samples to generate the plurality of correlation results.

23(New). A method according to claim 22, wherein the sequence of samples is stored in a plurality of memory blocks and one or more of the plurality of memory blocks are correlated with each other to generate the plurality of correlation results.

24(New). A method according to claim 23, wherein a sample in a first memory block is correlated with a corresponding sample in a second memory block to generate the correlation result.

25(New). A method according to claim 1, wherein the computing the correlation value comprises:

summing the plurality of correlation results.